

CLAIMS

What is claimed is:

1. A data communications system comprising a plurality of different networks coupled together by communication links, further comprising at least one multicast agent for coupling a multicast message transmission from a first network to a second network, said at least one multicast agent modifying the multicast message transmission from a multicast protocol of the first network to a multicast protocol of the second network.
2. A data communications system as in claim 1, where said first network comprises an IP network, and where said second network comprises a non-IP network.
3. A data communications system as in claim 1, where said first network comprises a wireless IP network, and where said second network comprises a non-IP network.
4. A data communications system as in claim 1, where said first network comprises a wireless IP network, and where said second network comprises a wireless local area network (WLAN).
5. A data communications system as in claim 1, where said first network comprises a wireless IP network, and where said second network comprises a Bluetooth network.
6. A data communications system as in claim 1, further comprising at least one mobile host coupled to said second network for receiving the multicast message transmission from said multicast agent.
7. A method to operate a data communications system comprising a plurality of different networks coupled together by communication links, comprising initiating a multicast session from a multicast server coupled to a first network; receiving a multicast message transmission from the multicast server with at least one multicast agent located in the first

network; and modifying with the at least one multicast agent the multicast message transmission from a multicast protocol of the first network to a multicast protocol of a second network.

8. A method as in claim 7, where said first network comprises an IP network, and where said second network comprises a non-IP network.

9. A method as in claim 7, where said first network comprises a wireless IP network, and where said second network comprises a non-IP network.

10. A method as in claim 7, where said first network comprises a wireless IP network, and where said second network comprises a wireless local area network (WLAN).

11. A method as in claim 7, where said first network comprises a wireless IP network, and where said second network comprises a Bluetooth network.

12. A method as in claim 7, further comprising receiving the multicast message transmission from said multicast agent with at least one mobile host coupled to said second network.

13. A method to simultaneously send a message to a plurality of mobile hosts through a plurality of different networks, comprising initiating a multicast session with the plurality of mobile hosts with a multicast server coupled to a first network; receiving a multicast message transmission for the plurality of mobile hosts with at least one multicast agent located in the first network; modifying with the at least one multicast agent the multicast message transmission from a multicast protocol of the first network to a multicast protocol of a second network; and delivering the multicast message transmission, in the second multicast protocol, to those mobile hosts that are wirelessly coupled to the second network.

14. A method as in claim 13, where said first network comprises an IP network, and where said second network comprises a non-IP network.

15. A method as in claim 13, where said first network comprises a wireless IP network, and where said second network comprises a non-IP network.
16. A method as in claim 13, where said first network comprises a wireless IP network, and where said second network comprises a wireless local area network (WLAN).
17. A method as in claim 13, where said first network comprises a wireless IP network, and where said second network comprises a Bluetooth network.
18. A method as in claim 13, where there are a plurality of said second networks coupled to said first network, each of said second networks comprising one of said multicast agents.
19. A method to simultaneously send a message from a server coupled to an end network, via at least one intermediate network, to a plurality of mobile devices coupled to the at least one intermediate network through a plurality of access networks, comprising setting up a multicast session between the server and the plurality of mobile devices via the end network, the at least one intermediate network, a plurality of the access networks, and a plurality of agents coupled between the end network and the at least one intermediate network, and between the at least one intermediate network and the plurality of access networks; receiving a multicast transmission at an agent coupled between at least one access network and the at least one intermediate network; directing the multicast transmission only to an access network or access networks where the agent has knowledge of at least one mobile device that is to receive the multicast transmission; where directing includes modifying with the at least one agent the multicast transmission from a protocol of the network that the multicast transmission was received from to a protocol of the network that the multicast transmission is to be directed to; and delivering the multicast transmission to the plurality of mobile devices, using a protocol appropriate for each access network to which the plurality of mobile devices are attached.
20. A method as in claim 19, where at least one network comprises an IP network.

21. A method as in claim 19, where at least one network comprises a non-IP network.
22. A method as in claim 19, where at least one access network comprises a wireless IP network.
23. A method as in claim 19, where at least one access network comprises a non-IP network.
24. A method as in claim 19, where at least one access network comprises a wireless local area network (WLAN).
25. A method as in claim 19, where at least one access network comprises a Bluetooth network.
26. A method as in claim 19, where at least one access network comprises a cdma network.
27. A method as in claim 19, where at least one access network comprises a low power RF network.
28. A method as in claim 19, where at least one access network comprises one of a wired or a wireless access network.
29. A method as in claim 19, where at least one access network comprises an infra red optical network.
30. A method as in claim 19, where there are a plurality of said access networks coupled to an intermediate network via a first agent, and where said intermediate network is coupled to said end network via a second agent, and where each agent records an identity of a network or networks coupled thereto having at least one mobile device that has enrolled to become part of the multicast session during the set up process, and where each agent directs a received multicast transmission only to a recorded network or networks.

31. A method as in claim 19, where messaging between networks is based on a SyncML DM protocol, WAP, XML, or any messaging protocol supported between networks.

32. A system to simultaneously send a message from a server coupled to an end network, via at least one intermediate network, to a plurality of mobile devices coupled to the at least one intermediate network through a plurality of access networks, comprising means for setting up a multicast session between the server and the plurality of mobile devices via the end network, the at least one intermediate network, a plurality of the access networks, and a plurality of agents coupled between the end network and the at least one intermediate network, and between the at least one intermediate network and the plurality of access networks; at an agent coupled between at least one access network and the at least one intermediate network, a receiver for receiving a multicast transmission and a transmitter for directing the multicast transmission only to an access network or access networks where the agent has knowledge of at least one mobile device that is to receive the multicast transmission; said agent further comprising means for modifying with the at least one agent the multicast transmission from a protocol of the network that the multicast transmission was received from to a protocol of the network that the multicast transmission is to be directed to for delivering the multicast transmission to the plurality of mobile devices, using a protocol appropriate for each access network to which the plurality of mobile devices are attached.

33. A system as in claim 32, where at least one network comprises an IP network.

34. A system as in claim 32, where at least one network comprises a non-IP network.

35. A system as in claim 32, where at least one access network comprises a wireless IP network.

36. A system as in claim 32, where at least one access network comprises a non-IP network.

37. A system as in claim 32, where at least one access network comprises a wireless local

area network (WLAN).

38. A system as in claim 32, where at least one access network comprises a Bluetooth network.

39. A system as in claim 32, where at least one access network comprises a cdma network.

40. A system as in claim 32, where at least one access network comprises a low power RF network.

41. A system as in claim 32, where at least one access network comprises one of a wired or a wireless access network.

42. A system as in claim 32, where at least one access network comprises an infra red optical network.

43. A system as in claim 32, where messaging between networks is based on a SyncML DM protocol, WAP, XML, or any messaging protocol supported between networks.

44. A system as in claim 32, where there are a plurality of said access networks coupled to an intermediate network via a first agent, and where said intermediate network is coupled to said end network via a second agent, and where each agent comprises memory for storing an identity of a network or networks coupled thereto having at least one mobile device that has enrolled to become part of the multicast session during the set up process, and where each agent transmits a received multicast transmission only to a network or networks having its identity stored in said memory.